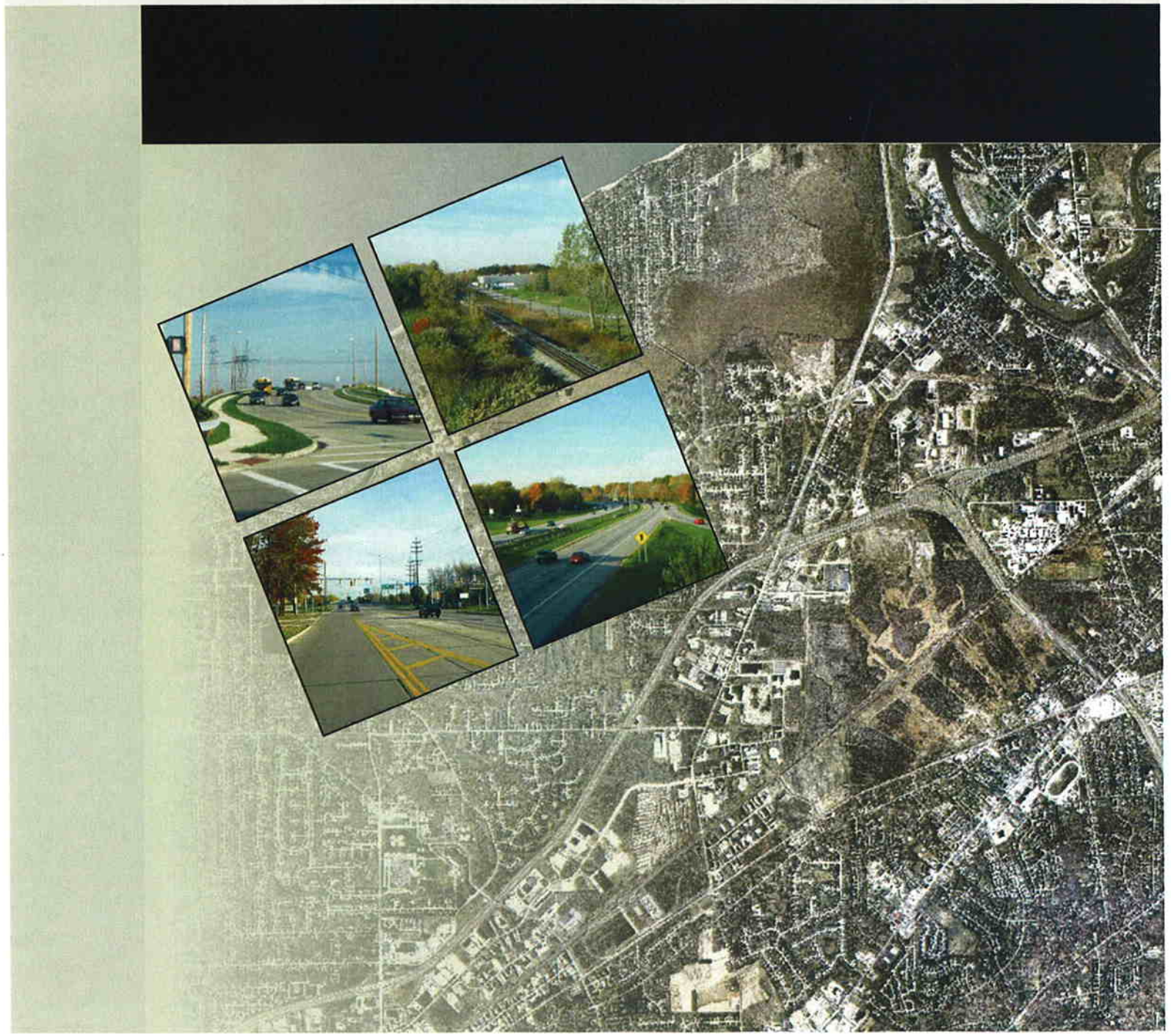
Red Flag Summary

Heisley Road (SR 2) and Jackson Street (SR 44) Network Access Study

May 2006



RED FLAG SUMMARY

Red Flag Summary Completed: January 2006

The purpose of this Red Flag summary is to identify concerns that could cause revisions to the anticipated design and construction scope of work, the purposed project development schedule, the estimated project budget, or the potential impacts of the project on the surrounding area.

Date Red Flag Summary Completed:	January 24, 2006
District	12
Project Name (County, Route, Section):	LAK-44-5.10; LAK-2-12.62; LAK-44-3.65; LAK-Heisley Rd.; LAK-Jackson St.; LAK-Shamrock Blvd.; LAK-Diamond Centre Drive
City, Township or Village Name(s):	**City of Painesville**: LAK-44-5.10, LAK-Jackson St. & LAK-Shamrock Blvd. / **City of Mentor**: LAK-2-12.62, LAK-Heisley Rd. & LAK-Diamond Centre Dr. / **Concord Twp**: LAK-44-3.65 / **Painesville Twp**: LAK-Jackson Street
PID	76236 (LAK-44-5.10); other projects TBD
Prepared By:	Burgess & Niple, Inc.
ODOT Project Manager:	TBD

GENERAL PROJECT PLANNING INFORMATION

Project Description:

Network study to determine infrastructure needs for year 2030 for the project area bounded by SR 2, SR 44, Jackson Street and Heisley Road. A few additional intersections beyond this area on US 20 from Heisley Road east to Fern Drive and on SR 44 at Blackbrook Road and SR 44 at SR 283 were also analyzed. Improvements to include: LAK-44-5.10 = the replacement of the existing half interchange at State Route 44 and Jackson Street with a modified full interchange approximately 700 feet north of Jackons Street on SR 44; LAK-2-12.62 = modifications to the Heisley Rd. interchange on SR 2 with the widening of the Heisley Road bridge to accomodate additional left-turn lanes onto and from the SR 2 ramps of the existing diamond interchange; LAK-44-3.85 = turn lane additions to existing ramps at the SR 44 & SR 84 interchange; LAK-Shamrock Blvd. & LAK-Diamond Centre Dr. = the widening of Shamrock Boulevard and Diamond Centre Drive from 2 through lanes to 4. LAK-Jackson St. = The addition of a two-way left turn lane and intersection turn lanes from Elizabeth Court to Newell St.; LAK-Heisley Rd. = Various intersection improvements; and LAK-New Connector Route = a new collector street from the Shamrock Business Center on Shamrock Blvd./Brookstone Dr. to Heisely Rd. at the intersections of Tyler Blvd. & Hendricks Rd; and additional intersection improvements on US 20 at Heisley Rd. & Old Johnnycake Rd. and at SR 44 and Blackbrook Rd.

The project area is located in the Cities of Mentor and Painesville and Concord and Painesville Townships with the critical area bounded by SR 2, SR 44, Jackson Street, and Heisley Road. The study project area included the interchanges at SR 2 and SR 615 to the west, SR 44 and SR 283 to the north, SR 2 and SR 293 to the east, and SR 44 and SR 84 to the south. The overall project area was bounded by Hopkins Rd. to the west, US 20 (Mentor Ave.) to the south; Newell Street to the east and Lake Erie to the north.

List Structures:

Bridge No.:	LAK-2-1262	Structure File #:	4301269 - Heisley Rd.
Bridge No.:	LAK-2-1354	Structure File #:	4301293 - UP SR 44 SW, DN SR 2
Bridge No.:	LAK-44-0510	Structure File #:	4302702 - JACKSON ST
Bridge No.:	LAK-44-0561	Structure File #:	4302761 - CSX RR
Bridge No.:	LAK-44-0561	Structure File #:	4302737 - CSX RR
Bridge No.:	LAK-44-0620	Structure File #:	4301323 - SR-2 (1355) & RAMP ES(G)
Bridge No.:	LAK-44-0385	Structure File #:	4302613 - SR 84
Bridge No.:	LAK-HEISL-HSLYN	Structure File #:	4363493 - HEISLEY OVER CSX
Bridge No.:	LAKE-HEISL-HSLYS	Structure File #:	4363469 - HEISLEY OVER NFS
Bridge No.:	Heisley over Creek just south of Jackson	Structure File #:	
Bridge No.:	Shamrock over CSX	Structure File #:	FUTURE

Estimated Project Cost: $ 32,000,000

Funding Source(s):

- [X] Federal
- [X] State
- [X] Local
- [X] Private

Are Funding Splits Reqired?

- [X] Yes
- [ ] No

Specify Splits: It is anticipated the total project will be split into several projects with costs being paid with federal, state and local funds, including some 100% local funds.

Anticipated Quarter and Fiscal Year of Project Awarded: begin FY 2010 through FY 2030

Project Sponser, if any: City of Painesville and City of Mentor

Is Local Legislation Required?

- [X] Yes

[ ] No

Is FHWA Oversight Required?

[X] Yes **(on interchange projects)**

[ ] No

Is the project located on the congestion / safety list?

[ ] Yes

[X] No

Problem identified by (indicated document date):

[ ] District Work Plan	
[ ] Congestion Study	
[ ] Safety Study	
[ ] Major New	
[ ] MPO TIP	
[ ] MPO LRP	
[ ] Access Ohio	
[X] Other	Painesville and Mentor Cities with various traffic studies; LAK-44-5.10 programmed with NOACA for PE from Federal earmark in July 2003

Are there any projects in the area (ODOT, Local, Utility) that might conflict with the project (e.g. a local project on the proposed detour route, a resurfacing project a year after the pavement marking project)?

[X] Yes

[ ] No

Specify: ODOT has the LAK-2-7.60 third-lane widening project scheduled for FY 2010 for this area. Improvements to the Heisley Rd./SR 2 interchange (LAK-2-12.62) and the Jackson St./SR 44 interchange (LAK-44-5.10) could be coordinated to fit into the LAK-2-7.60 construction package if funding is worked out. The City of Mentor is scheduled to widen Heisley Rd. from 4 lanes to 6 lanes in 2009 according to NOACA's TIP. Heisley Rd. intersection improvements should be incorporated into the Heisley Rd. widening project.

Are there growth or land use changes in the area surrounding the project that could have an impact on the project scope?

[X] Yes

[ ] No

Specify: Several large developments involving over 500 acres are planned or are in the process of being constructed for the vacant land bounded by SR 2, SR 44, Jackson St. and Heisley Rd. Developments will consist of residential, industrial and commercial. A 750-unit residential development is under development between the CSX railroad and Jackson St. and Phase 1 of a 300-acre multi-use development has begun just east of the Painesville/Mentor Corporation line with the extension of Diamond Centre Drive (Brookstone Blvd.). The Network Access Study traffic modeling and analysis took into account the projected development for the undeveloped areas and the communities provided the data for the density and types of development.

Are there known public involvement issues?

[X] Yes

[ ] No

Specify: The involved communities have been negotiating proposed improvements with the developers since 1997. The Network Access Study was begun to determine the best plan of action to accommodate the additional traffic from all of the developments. No outstanding issues were raised during the public comment period in November and December of 2005 after the public meeting with the exception of the communities expressing desires to accomodate the increased traffic caused by the area developing so quickly.

Purpose and Need Statement (Must be a separate document for Major Projects):

See attached document.

Other Information / Notes:

None

EXISTING INFORMATION:

Check all information that was reviewed for the Red Flag Summary. Not all information is available or necessary for every project. The scope of the Red Flag Summary should be commensurate with the nature of the proposed project.

[X]	Legal Speed	60=SR 2 & SR44; 35=Heisley/Jackson/US 20; 25=Diamond Centre/Shamrock Blvd./New Connector
[X]	Design Speed	60 (original projects)=SR 2 & SR 44; 40=Heisley/Jackson/US 20; 30=Diamond Centre/Shamrock Blvd./New Connector
[X]	Traffic Data:	
	Opening Year ADT:	SR 2 @ Heisley = 54,500; SR 44 @ Jackson = 37,000; Heisley Rd. = 26,350; Jackson St. = 14,400; Diamond Centre Dr. = 18,450; Shamrock Blvd.= 41,675; New Connector = 15,500
	Design Year ADT:	SR 2 @ Heisley = 64,400; SR 44 @ Jackson = 44,000 ; Heisley Rd. = 31,100; Jackson St. = 17,000; Diamond Centre Dr. = 21,800; Shamrock Blvd.= 49,200; New Connector = 18,300
	Design Hourly Volume:	SR 2 @ Heisley = 6,440; SR 44 @ Jackson = 4,400; Heisley Rd. = 3,110; Jackson St. = 1,700; Diamond Centre Dr. = 2,180; Shamrock Blvd.= 4,920; New Connector = 1,830
	Directional Distribution:	SR 2 @ Heisley = 60/40; SR 44 @ Jackson = 60/40; Heisley Rd. = 55/45; Jackson St. = 55/45; Diamond Centre Dr. = 55/45; Shamrock Blvd.= 55/45; New Connector = 55/45
	Trucks (24 Hr. B&C):	SR 2 @ Heisley = 2,898; SR 44 @ Jackson = 1,980; Heisley Rd. = 622; Jackson St. = 42; Diamond Centre Dr. = 218; Shamrock Blvd.= 492; New Connector = 183

(Traffic data does not need to be certified for the Red Flag Summary.)

[X]	Turning Movement Traffic Counts	
[X]	Functional Classification:	
[X]	Interstate, Freeway	SR 2 & SR 44
[X]	Arterial	US 20
[X]	Collector	Jackson St.; Heisley Rd.; Newell St.; Diamond Centre Dr.
[X]	Local	Shamrock Blvd.; New Connector Street
[X]	Locale:	
[ ]	Rural	
[X]	Urban	
[X]	National Highway System (NHS):	
[X]	NHS Routes:	SR 2 & SR 44
[X]	Non-NHS Routes:	Heisley Rd., Jackson St., Diamond Centre Dr., Shamrock Blvd., New Connector; US 20
[X]	(3R) Project?	
[ ]	Yes	
[X]	No	

- [x] Aerial Mapping
- [ ] Ohio Utility Protection Service (OUPS) Markings
- [x] United States Geologic Survey (USGS) topographic mapping
- [x] Federal Emergency Management Agency (FEMA) flood plain study mapping
- [ ] Natural Resources Conservation Services (NRCS) mapping
- [x] County Map(s)
- [x] Airport locations within 4 miles of project
- [x] Tax maps
- [x] Property deeds
- [ ] Pavement marking log
- [x] Original construction plans: SR 2 & SR 44
- [x] Existing Right-of-Way plans: SR 2 & SR 44
- [x] Bridge Inspection Reports
- [ ] Bridge Load Ratings
- [ ] Pile Driving Logs
- [x] Recorded vertical clearances for overpasses and underpasses
- [x] Old soil borings
- [ ] Old Geologic reports
- [ ] Pavement Cores
- [x] Dynaflec Testing
- [ ] Deck Cores
- [ ] Ground Penetrating Radar (GPR Data)
- [x] Maintenance history
- [x] Pavement Condition Ratings (PCRs)
- [x] County manager concerns
- [x] Traffic studies, Highway Safety Program (HSP) studies
- [ ] Previous Maintenance of Traffic concerns on roadway
- [x] Accident history / Accident reports
- [ ] Past Project Construction Diaries
- [x] Permitted Lane Closure Map
- [ ] Property owner contacts
- [x] National Register of Historic Places
- [x] Other: Ohio Historic Inventory; Ohio Archaeological Inventory; National Register;

EXISTING GEOTECHNICAL INFORMATION:
Identify all geotechnical references found. It is assumed , based on the project type, that not all reference materials listed herein will be applicable for use during the Red Flag Study. This study should provide a comprehensive review of all existing information available for the project area and should be supplemented with a complete field reconnaissance

Review of Information From ODOT:

- [x] Original Construction Plans Including plan views, profiles, and cross-sections
- [ ] Construction diaries and inspection reports for original construction
- [ ] Compile information on changes to the plans during construction activities (e.g., slope, spring drains)
- [ ] Interview people knowledgeable with the previous projects
- [ ] Maintenance records
- [ ] Boring log on file with the Office of Geotechnical Engineering
- [ ] History and occurrence of landslides
- [ ] History and occurrence of rockfalls
- [x] Other LAK-2 Corridor study info

Review of Information from ODNR:

From the Division of Geological Survey

- [ ] Boring logs on file
- [ ] Measured geological sections
- [ ] Bedrock Geological Maps
- [ ] Bedrock Topography Maps
- [ ] Bedrock Structure Maps
- [ ] Geologic Map of Ohio
- [ ] Quaternary Geology of Ohio
- [ ] Known and Probable Carst in Ohio
- [ ] Bulletins
- [ ] Information Circulars
- [ ] Report of Investigations
- [ ] Locations and Information on underground mines
- [ ] Location and characteristics of karst features
- [ ] Landslide Maps
- [ ] Other

From the Division of Mineral Resource Management

- [ ] Applications and permits files for surface mines (coal & industrial mineral)
- [ ] Active, reclaimed or abandoned surface mines
- [ ] Abandoned Mine Land (AML) sites
- [ ] Emergency Projects
- [ ] Other

From the Division of Soil & Water

- [ ] Water well Logs
- [ ] Soil Survey
- [ ] Ohio Wetland Inventory Maps
- [ ] National Wetland Inventory Maps
- [ ] Presence of lake bed sediments, organic soils or peat deposits
- [ ] Other

Other Sources:

- [X] Aerial photography
- [X] Satellite imagery (Google Earth website)
- [X] USGS quadrangles
- [ ] USGS publications and files
- [X] City and County Engineers
- [ ] Academia with engineering or geology programs
- [ ] USGS open File Map Series #78-1057 "Landslide and Related Features"
- [ ] Other

SITE VISIT:

A site visit is required for ALL projects. The site visit shall consist of visual inspection of the entire project area including the ditch lines, cut slopes, stream banks, bridge foundations, pavement, rock / soil slopes, etc.

Date(s) of Site Visit: 7/19/2005, 10/7/2005, 10/17/05, 11/3/05

ODOT DISCIPLINE INVOLVEMENT:

List name and phone number of individual(s) representing each discipline during the site visit and preparation of the Red Flag Summarry. One individual may represent multiple disciplines. Check box if individual attended the site visit.

☐	District Project Manager	TBD	Phone:
☐	Geometrics	TBD	Phone:
☐	Hydraulics	TBD	Phone:
☐	Pavements	TBD	Phone:
☐	Geotechnical	TBD	Phone:
☐	General Roadway	TBD	Phone:
☐	Structures	James Calanni, PE	Phone: 216-584-2110
☐	Traffic Control	TBD	Phone:
☐	Signals	TBD	Phone:
☐	Maintenance of Traffic	Dennis O'Neil, PE	Phone: 216-584-2204
☐	Right-of-Way / Real Estate	Daniel Dougherty, PE	Phone: 216-584-2130
☐	Utilities	Curtice Malone	Phone: 216-584-2131
☐	Survey	Thomas Stanziale, PS	Phone: 216-584-2137
☐	Environmental	Mark Carpenter, PE	Phone: 216-584-2089
☐	Highway Management	David Ray, PE	Phone: 216-584-2260
☐	CO Program Mangager	Karen Young	Phone:
☐	County Manager(s)**	Joe Arezone	Phone: 216-584-3308
☐	Production Administrator**	Michael Kubek, PE	Phone: 216-584-2100
☐	Planning Administrator**	Dale Schiavoni, PE	Phone: 216-584-2080

** The County Manager, District Production Administrator, and District Planning Administrator (or qualified represenative) must attend the site visit.

EXTERNAL AGENCY INVOLVEMENT:

Indicate external agency involvement during identification of red flags. List the name and phone number of individual(s) representing each agency during the site visit. Check box if individual attended the field review.

☐	Federal Highway Administration (FHWA)	Michael Armstrong	Phone: 614-280-6855
☐	County Engineer	James Gills, PE, PS	Phone: 440-350-2770
☐	City Engineer	William Carlson, PE-PVL David Swiger, PE-Mentor	440-392-5926 Phone: 440-974-5785
☐	Other Local Public Agency	Lee Bodnar - Painesville Twp. Administrator	Phone: 440-352-1443
☐	Federal Emergency Management Agency (FEMA)		Phone:
☐	US Army Corps of Engineers (USACE)		Phone:
☐	U.S. Coast Guard		Phone:
☐	Ohio Department of Natural Resources (ODNR)		Phone:
☐	Ohio Environmental Protection Agency (OEPA)		Phone:
☐	Railroad Railway Company		Phone:
☐	State Historical Preservation Office (SHPO)		Phone:
☐	Metropolitan Planning Organization (MPO)	NOACA	Phone: 216-241-2414

☐ Utilities Company list:

☐	Electric	Painesville Electric - Tom Greene, PE	Phone: 440-352-9301
☐	Electric	The Illuminating Co. - Frank Dibbs	Phone: 440-546-8748
☐	Telephone	SBC - Courtney Norris	Phone: 216-476-6142
☐	Telephone	AT&T - Jeff Ballinger	Phone: 513-784-3238
☐	Water	Painesville Water - Wm. Vargyas, PE	Phone: 440-352-9301
☐	Water	Lake County Utilities - Al Saari, PE	Phone: 440-350-2649
☐	Gas	Dominion East Ohio - Mike Antonius	Phone: 216-736-6675
☐	Sanitary	Painesville City - Randy Bruback	Phone: 440-352-9301
☐	Sanitary	Lake County Utilities - Al Saari, PE	Phone: 440-350-2649
☐	Cable	Adelphia - Jerry Vance	Phone: 216-663-4003
☐	Cable	Comcast - Michael Jones	Phone: 440-974-3401
☐	Other - Nitrogen	OS Air, Inc. - John Magnusson	Phone: 440-951-1111
☐	Other		Phone:

ODOT COUNTY MANAGER CONCERNS:

List any comments / requests from the ODOT County Manager

ACCIDENT DATA:

Summarize accident history. Indicate and design features that should be revised to increase safety

Accident Analysis - 2000 through 2003

Corridors: Newell between Balckbrook and Jackson - 15 property damage, 10 injury/fatality; State Route 44 between State Route 2 and Jackson - 20 property damage, 7 injury/fatality; State Route 44 between Jackson and State Route 84 - 9 property damage, 2 injury/fatality; Heisley between Diamond Centre and Hendricks - 100 property damage, 19 injury/fatality; Heisley between Hendricks and Jackson (2001-2002 only) - 4 property damage, 0 injury/fatality; Jackson between Heisley and Fern - 36 property damage, 17 injury/fatality; Jackson between Harmon and Newell - 2 properly damage, 0 injury/fatality; Mentor between Heisley and Johnnycake - 11 property damage, 2 injury/fatality; Mentor between Johnnycake and Fairgrounds - 134 property damage, 57 injury/fatality; Mentor between Fairgrounds and Chestnut - 39 property damage, 7 injury/fatality

Intersections: Heisley and State Route 2 Eastbound - 9 property damage, 2 injury/fatality; Heisley and Diamond Centre - 16 property damage, 0 injury/fatality;Heisley and Tyler (2001-2002 only) - 12 property damage, 5 injury/fatality; Heisley and Jackson (2001-2002 only) - 16 property damage, 1 injury/fatality; Heisley and Mentor (2001-2002 only) - 13 property damage, 5 injury/fatality; Jackson and Fern - 27 property damage, 8 injury/fatality; Jackson and Harmon - 12 property damage, 3 injury/fatality; Mentor and Johnnycake - 53 property damage, 15 injury/fatality; Mentor and Fairgrounds - 14 property damage, 12 injury/fatality; Mentor and Fern - 13 property damage, 3 injury/fatality; Mentor and Newell - 13 property damage, 9 injury/fatality; Mentor and Chestnut - 14 property damage, 7 injury/fatality; State Route 44 SB and State Route 84 - 22 property damage, 7 injury/fatality; State Route 44 NB and State Route 84 - 16 property damage, 9 injury/fatality

ENVIRONMENTAL ISSUES:
Make a preliminary determination on whether the following resources will be affected by the proposed project.

Involvement:	Resource	Comments	References*
☐ Yes ☐ No ☒ Possible	Parkland, nature preserves and wildlife areas (Name)	Mentor Marsh is located northwest of the study area.	
☐ Yes ☒ No ☐ Possible	Cemetery (Name)		
☐ Yes ☒ No ☐ Possible	Scenic River (Name)		EPM: 104.2, 104.2.4
☐ Yes ☒ No ☐ Possible	Public Facilities (Name)		
☐ Yes ☐ No ☒ Possible	Threatened and Endangered Species and/or habitat (e.g., Indiana bat trees, etc.)	Spotted Turtle	EPM: 104.2, 104.2.6
☒ Yes ☐ No ☐ Possible	Existing cat tails (Location)	Cat tails observed in various locations south of SR 2 and west of SR 44.	
☒ Yes ☐ No ☐ Possible	Existing wet areas (Location)	Wetland areas are present southwest of the SR2 & SR44 interchange. Wetland delineations have been performed over the last 5 years over much of the project area.	EPM: 104.2, 104.2.3
☐ Yes ☐ No ☒ Possible	Streams, rivers and watercourses (Use Designation)	Heisley Creek and Black Brook	EPM: 104.2, 104.2.4
☐ Yes ☒ No ☐ Possible	Historic Building(s) (Location)		EPM: 104.3
☐ Yes ☒ No ☐ Possible	Historic Bridge(s) (Location)		EPM: 104.3
☐ Yes ☒ No ☐ Possible	Farmland (Location)		
☐ Yes ☒ No ☐ Possible	Landfill(s) (Location)	Lake County landfill is located approximately 5 miles east of project.	
☐ Yes ☐ No ☒ Possible	Total Maximum Daily Load (TDML) Streams	Heisley Creek runs within the study area.	
☒ Yes ☐ No ☐ Possible	ODOT MS4 Phase 2 Regulated Areas	The project area is within a Municipal Separate Storm Sewer System area.	
☐ Yes ☐ No ☒ Possible	Evidence of hazardous materials (Location)	25 brine wells are identified within 2 fields of the study area. Various industrial facilities near the study area. Numerous USTs and RCRAs are located along the Heisley Rd. corridor.	EPM: 104.7
☐ Yes ☐ No ☒ Possible	Sensitive environmental justice areas		
☐ Yes ☐ No ☒ Possible	Federal Emergency Management Agency (FEMA) floodplains		EPM: 104.2, 104.2.5
☐ Yes ☒ No ☐ Possible	Lake Erie Coastal Management Area		EMP: 104.2
☐ Yes ☒ No ☐ Possible	Sole Source Acquifers (Location)		
☐ Yes ☒ No ☐ Possible	Wellhead Protection Areas (Specify)		
☐ Yes ☐ No ☒ Possible	Does it appear that noise abatement will be an issue for the project?	Noise wall locations have been identified and walls are being designed for the LAK-2-7.60 corridor. Noise walls will be included in the final design as required or justified.	
☐ Yes ☒ No ☐ Possible	Other Environmental Issues		

GEOMETRIC ISSUES:
Use the design speed, design functional classification and available traffic data to make a preliminary determination as to the geometric standards for the project. Compare these requirements to accident data and impacts if deviations are being considered

Design Exception Required?	Design Feature	Preliminary Comments Regarding Justification	References*
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Lane Width (including curve widening)		LDV1: 301.1.1
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Graded Shoulder Width		LDV1: 301.2.3
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Bridge Width	The Heisley Rd. Bridge over SR 2 will require widening to accommodate dual left-turn lanes onto the ramps. Bridge width will be accomodated in final design.	LDV1: 302.1
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Structural Capacity		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Horizontal Alignment (including Excessive Deflections, Degree of Curve, Lack of Spirals, Transition/Taper Rates and Intersection Angles)		LDV1: 202, 401.2
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Vertical Alignment (including grade breaks)		LDV1: 203
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Grades		LDV1: 203.2
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Stopping Sight Distance		LDV1: 201.2
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Pavement Cross Slopes		LDV1: 301.1.5
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Superelevation (Maximum rate, transition, position)		LDV1: 202.4
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Horizontal Clearance		LDV1: 301.2.5
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Vertical Clearance	Vertical clearance issues on SR 2 are being handled as part of the LAK-2-7.60 plan development.	LDV1: 302.1

Indicate if the following geometric issues are present or should be considered during project development. Consider work on the mainline as well as any side roads or service roads. Provide additional comments as needed.

	Design Issue	Comments	References*
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the existing horizontal alignment need to be modified?		LDV1:202
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the existing vertical alignment need to be modified?		LDV1:203
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does stopping sight distance need to be increased?		LDV:201.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does intersection sight distance need to be increased?		LDV1: 201.3
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there any hazards in the clear zone? Specify treatment.	Added turn lanes at intersections will result in intersection widening. Obstacles in these areas such as utility poles, hydrants, etc. will be relocated outside the clear zone as needed.	LDV1: 600.2, 601
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Does existing guardrail need to be replaced (e.g., too low, poor condition)?	Widening of pavement may result in relocation of guardrail.	LDV1: 602, 603
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is there sufficient area for guardrail anchor assemblies (E-98 or B-98)?		LDV1: 602, 603
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the number of turn lanes appear to be adequate?	Additional turn lanes are needed at intersections along the Heisley Road, US 20 and Jackson Street corridors.	LDV1: 401.7, 402
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the number of through lanes appear to be adequate?	Diamond Centre Drive and Shamrock Blvd. may need to be widened from 2 through lanes to 4 through lanes.	LDV1: 401.7
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are changes to access control required?	Two drive entrances near the southerly SR 2 ramps on Heisley Rd. may be required to be right-turn only or the establishment relocated.	LDV1: 800, 801, 802
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there any drive locations that will require special attention during design (e.g., very steep grades, high volume commercial drives, drives close to bridges or intersections)?	There are a number of commercial drives located along Heisley Road that will require special attention. Access management practices should be followed.	LDV1: 803, 804, 805
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are new mailbox turnouts required?		LDV1: 803.1
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is there any evidence of accidents due to substandard vertical clearance on overpass structures?	The Jackson St. bridge over SR 44 was recently damaged and heat straightened to repair an oversized load accident.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Will an interchange be added or modified?	The Jackson St. interchange is a half-diamond. A full-access diamond is proposed at a modified location just north of Jackson St. The Heisley Rd. interchange and SR 84 interchanges will require additional turn lanes on the ramps and streets.	LDV1: 403, 404
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Do the existing intersection radius returns need to be modified to accommodate larger truck turning movements?	As part of turn-lane improvements, deficient intersection radii returns will need to be addressed.	LDV1: 401.5
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does grading need to be upgraded? To what criteria (e.g., clear zone, safety, standard)?		LDV1: 307
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any other geometric issues? Describe	The SR 2 corridor study showed ramp terminals do not meet current design standards at most interchanges. These are being upgraded as part of the SR 2 corridor projects by ODOT. An auxilliary lane is being added between the Heisley Rd. interchange ramps and the SR 44 systems interchange as part of the same LAK-2-7.60 project.	

HYDRAULIC ISSUES:

Indicate if the following drainage issues are present or should be considered during project development. Side road and service road work should be considered in this assessment. Provide additional comments as needed.

	Design Issue	Comments	References*
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Based on visual evidence (height of debris, erosion or other markings left from high water) and approximate drainage areas, does the existing drainage system (culverts, storm sewers and/or ditches) appear to be appropriately sized and functioning properly? Describe deficiencies.	A few ditches, conduits, and drainage structures will require cleaning or replaced due to poor condition.	LDV2: 1003 - 1006
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is there evidence of alignment or flow velocity problems (e.g., scour, bank erosions, silting) at culvert entrances or exits?	SR 2 & SR 44 ditches and culverts should not be impacted except possibly at interchanges where relocation of ditches may be required and problems corrected.	LDV2: 1107
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there sinkholes or other deterioration in the pavement that would indicate separations in the existing pipes?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Should guardrail over culverts be eliminated with clear zone grading?		LDV1: 307.2
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Should the existing culverts be replaced?	After a culvert inspection is done for the existing conduits, a determination will be made on whether to extend or replace them due to pavement widenings.	LDV2: 1105
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Should the existing culverts be extended?	After a culvert inspection is done for the existing conduits, a determination will be made on whether to extend or replace them due to pavement widenings.	LDV2: 1105
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will a new alignment concentrate flow (in culverts) that is currently overland flow?		LDV2: 1105
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will the maximum height of cover (100') be exceeded for any culvert?		LDV2: 1008
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will bankfull design be used for any culverts?		LDV2: 1105.3.3
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Could materials with long lead times (e.g., large boxes) have an impact on construction schedule?		
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the existing drainage system have an odor that might indicate that it includes septic connections?		LDV2: LD-30 Form 1111.1
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is the exposed curb height in existing gutters adequate to contain flow (include height of proposed resurfacing)?		LDV2: 1103
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Do the existing inlets or catch basins need to be raised to meet proposed grade?	Widening will result in replacement.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is the project in a FEMA flood zone?	Portions of the study area are within the 100-year flood plains of Heisley Creek.	LDV2: 1005
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Does the project affect a wetland or waterway (e.g., stream, river, jurisdictional ditch)?	Heisley Creek, Black Brook and possibly various wetlands	LDV2: 1001.2

[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is the existing and/or proposed channel alignment compatible with the existing/proposed structure?		
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will channel relocation be required?		LDV2: 1102.2.4
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Will Municipal Separate Storm Sewer System (MS4) requirements apply?		
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Will post construction flow requirements be required?		LDV2: 1115.1 LDV2: 1115.2
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is there evidence of existing field tiles?		LDV2: 1002.3.6, 1108
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are underdrain outlets functioning properly?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will a new storm sewer outfall be required?		LDV2: 1104
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is ditch cleanout required?	Numerous areas with vegetation.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the drainage work warrant any special maintenance of traffic considerations?		TEM: PART 6
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any other hydraulic issues? Describe.		

GEOTECH ISSUES:
"Geotechnical Red Flag" features may include, but are not limited to, known or suspected geologic hazards (e.g., organic soils, karst, rockfalls, landslides, surface and underground mines, poor subgrade conditions, or difficulty in correcting existing surface or subsurface drainage problems).

GEOLOGY
{Provide a brief geologic description of the project area}
{Provide a description of the hydrogeologic setting}
{Describe the characteristics of the soils}
{Describe the characteristics of the rock}

ORIGINAL CONSTRUCTION PLAN OBSERVATIONS
{Provide a bulleted list of all pertinent features found during the plan and specification review}
{Include findings from previous geotechnical reports or investigations}
{If general alignment or corridor is known, develop profiles to graphically present subsurface conditions (e.g., soil, rock, groundwater).
{Describe soil classifications and problem conditions}
{Describe bedrock and problem conditions}

DISTRICT NOTATIONS
{Provide synopsis of information compiled through the District and County Garages}
{Include construction issues and maintenance problems}

FIELD REVIEW
{Summarize the findings from a complete field reconnaissance}
{Provide bulleted items with references to locations}
{Include conditions of embankments, soil & rock cut slopes, surface water erosion, ground water seeps or springs, settlements, surface deformation, abnormal pavement cracking, etc.}

SUMMARY OF GEOTECHNICAL ISSUES
Based on the information compiled during this study indicate whether or not the following geotechnical issues are present or should be further considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is there evidence of soil drainage problems (e.g., wet or pumping subgrade, standing water, the presence of seeps, wetlands, swamps, bogs)?	There are known wetlands in the area surrounded by SR 2, SR 44, Heisley Rd. and Jackson St. Delineations have been prepared for the area in the past 7 years.	SSI: 2.1, 2.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there evidence of any embankment or foundation problems (e.g., differential settlement, sag, foundation failures, slope failures, scours, evidence of channel migrations)?		SSI: 2.1, 2.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there evidence of any landslides?		SSI: 2.1, 2.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there evidence of unsuitable materials (e.g., presence of debris or man-made fills or waste pits containing these materials, indications from old soil borings)?		SSI: 2.1, 2.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there evidence of rock strata (e.g., presence of exposed bedrock, rock on the old borings)?		SSI: 2.1
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there evidence of active, reclaimed or abandoned surface mines?		SSI: 2.1, 2.2, AUM
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is there information pertaining to the existence of underground mines?	Salt solution wells &/or underground mines were identified in the LAK-2-3.63 Corridor Geotechnical Red Flag summary from May of 2005.	SSI: 2.1, 2.2, AUM
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Are soil borings needed for pavement design, foundations (bridge, headwall, retaining wall, noise wall) or slopes?	Borings necessary for new structures at Jackson St. and Renaissance Pkwy. Possible for new connector street.	SSI: 2.1, 2.2
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Does an undercut appear to be needed?	Undercut or soil stabilization areas have been specified in the area for construction projects involving Renaissance Parkway, Shamrock Blvd. and Brookstone Dr.	SSI: 5.3.2.1
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Should the Office of Geotechnical Engineering be contacted to evaluate the project site?		SSI: 1.3
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are There any other geotechnical issues? Describe.		

Provide a list of bulleted items referencing additional areas of concern or special notation.

PAVEMENT ISSUES:

Indicate if the following pavement issues are present or should be considered during project development. Side road and service road work should be considered in this assessment. Provide additional comments as needed.

	Design Issue	Comments	References*
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are pavement cores needed to determine the existing pavement buildup and/or condition?		
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Is the proposed pavement buildup known? (For pavement preservation projects, pavement treatment, including pavement type & thickness should be specified in the design scope of services)	Record plans are available for the existing streets affected. SR 2 and SR 44 mainlines will not be affected. Ramp compositions at Heisley Rd. are known due to LAK-7.60 project. Jackson St. ramps will be removed entirely.	
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Is the existing pavement concrete or asphalt?	SR 2 and SR 44 consists of a concrete base and asphalt wearing course. Heisley Rd, Diamond Centre Dr., and Shamrock Blvd. are concrete pavements. Jackson St. is a concrete pavement with asphalt overlay.	
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Are dynaflect tests available to assess existing pavement condition?	Dynaflect tests were recently performed by Central Office for the LAK-2 corridor.	
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Does the proposed pavement buildup need to be approved by the Pavement Selection Committee?	For new ramp compositions.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are joint repairs needed?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are pressure relief joints needed?	Possibly for new structures on Jackson St. and Renaissance Pkwy.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are pavement repairs needed?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does the maintenance of traffic scheme require additional permanent or temporary pavement?	During the construction of the relocated Jackson St. interchange, temporary pavement may be necessary to maintain access to the existing ramps while the proposed bridge and ramps are being constructed.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does curb need to be replaced due to deteriorated condition or lack of curb reveal?	Possibly on Jackson Street and US 20 projects.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does sidewalk need to be replaced or installed?	Sidewalk may need relocated on the Jackson St., US 20, Diamond Centre Dr. and Heisley Rd. projects.	LDV1: 306.2
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are new curb ramps needed?	Curb ramps will be relocated for all projects involving intersection widenings and improvements.	LDV1: 306.3
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Do truncated domes need to be installed?	See above.	LDV1: 306.3.5
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Is there any work on side roads, service roads or ramps?	See project description.	
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Are there any special drive treatments or preferences (e.g., concrete for all drive aprons, curved aprons, etc.)?	The Cities of Painesville and Mentor both have policies that drive aprons are to be concrete.	
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Has the site received repeated resurfacings in recent years?	SR 44 was resurfaced within the past 3 years.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does pavement deterioration appear to be caused by drainage or geotechnical problems?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other pavement issues? Specify.		

STRUCTURAL ISSUES:

Indicate if the following strucutre issues are present or should be considered during project development. Provide additional comments as needed. Provide a separate table for each structure.

Structure:	Design Issue	Comments	References*
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Can the structure be replaced with a prefabricated box culvert or 3-sided box?		BDM: 201
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Does the bridge (including foundation) meet current design live loading?		BDM: 301.4, 301.4.1, 301.4.2
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Was the existing structure built according to plan?		BDM: 206, 401.1, 610.1
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is deck coring needed?	The Jackson St. Bridge over SR 44 will require replacement and lengthening due to the location of new ramps below. The Heisley Rd. Bridge over SR 2 inspection reports show it to be in good condition.	BDM: 412
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is the deck delaminated? Specify.	The Jackson St. Bridge was overlayed within the past 3 years. The Heisley Rd. Bridge over SR 2 contains delaminations.	BDM: 412
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is non-destructive testing needed to determine the amount of delamination?	On the Heisley Rd. Bridge over SR 2.	BDM: 412
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is the bridge deck in good condition?		BDM: 412
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Has a deck condition survey (Bridge Design Manual, Section 412) been performed?	Survey was completed in 2000.	
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there areas to be patched or repaired on the deck?		BDM: 403.1, 404.3
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is the bridge a good candidate for an overlay? Specify type of overlay if known.	Possibly Heisley Rd. over SR 2.	BDM: 404.1, 404.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does the bridge rail meet current standards?		BDM: 209.2, 304, 410
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Is a fatigue analysis required?		BDM: 402.2, 402.3
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Should all fatigue prone details be retrofitted or replaced? Specify.		BDM: 402.2, 402.3
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is the abutment (including backwall, beam seats, breatwall, wingwall, etc.)) in good condition? Specify location and level of deterioration.		BDM: 403.1
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Is there any evidence of substructure movement (e.g., settlement, rotation)?		
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Should the piers be replaced or reused? Specify.		BDM: 303.3
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is there any evidence of existing beam deterioration/section loss, strands exposed, shear joints leaking or longitudinal cracks?	Corrison. North fascia beam was stuck and severed in 2004.	BDM: 402.1
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Are the bearings in good condition?		BDM: 411
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Can the deck joint be eliminated? If not, specify what modifications are necessary.		BDM: 205.8, 205.9, 406
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Are new approach slabs needed?		BDM: 209.5
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Can hinges be removed to make the members continuous?		BDM: 402.8
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Does existing vertical and horizontal clearance meet design standards?		BDM: 207.1, 207.3, 209.8

☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Is the bridge on a curve, skew or superelevation transition?		BDM: 207.5, 209.1
☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Is there any evidence that the bridge does not meet hydraulic capacity?		BDM: 202.5, 203
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Are there existing sidewalks on or adjacent to the bridge?		BDM: 209.11
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will the structure work require any special maintenance of traffic (e.g., closing of roadway for erection of beams, special location of cut line, etc.)? Specify.		BDM: 208, 409, 304.3.5
☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Is the structure in a Federal Emergency Management Agency (FEMA) flood plain?	Structures for project not over waterways.	BDM: 203
☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Is there any erosion in the existing channel?		BDM: 203.3
☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Is the foundation exposed due to scour?		BDM: 203.3, 409.3
☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Will there be more than 25' of channel relocation?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any opportunities to construct the bridge faster (e.g., precast walls, segmental construction)?		
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Is there any railroad involvement?	Shamrock Blvd. widening will entail possible structure widening over the CSX rail. Project presently will have to be done as a local project not eligible for federal or state funds.	BDM: 209.8
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does the bridge need to accommodate future additional roadway lanes or railroad tracks?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will temporary shoring be required next to the roadway?		BDM: 208.3
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Could materials with long lead times for delivery (e.g., steel beams) have an impact on the construction schedule?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any problems with existing retaining walls?		BDM: 204.9
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other structures issues? Specify		

TRAFFIC CONTROL ISSUES:

Indicate if the following traffic control (signals, signing, pavement markings, etc.) issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Do the existing signs need to be replaced due to poor condition?	Signs will most likely be replaced during the LAK-2-7.60 project for SR 2, but SR 44 signs will require replacement due to relocation of ramps.	TEM: 260
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any obvious deviations from requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD)?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Is a particular type of pavement marking desired (e.g., paint, epoxy, thermoplastic)?		TEM: 320
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will pavement planing affect loop detectors?		TEM: 450-10.7, 420-5
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will pavement widening affect pole locations?	As intersections are widened to add turn lanes, signal poles will need to be moved.	TEM: 450-6
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Will resurfacing effect signal height?		TEM: 450-7
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does it appear that any traffic control items will fall outside the existing right of way limits (e.g., large signs, strain poles)?	As intersections are widened to add turn lanes, additional right of way may need to be aquired for widened pavement and new signal poles.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any special pedestrian considerations?		TEM: 404
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any accidents that can be related to existing signal deficiencies (e.g., timing, lack of turn lanes)?		TEM: 402-3.5
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Do turn lane lengths appear to have sufficient storage capacity?		LDV1; 401.7
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Does the controller need to be upgraded?		TEM: 460
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Do proprietary materials need to be specified?	The Cities of Painesville and Mentor both have interconnected signal systems that may require some proprietary items.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Should signs or signal installations be supplemented with lighting?		TEM: 408
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Are any TODS signs present?	Signs for Headlands State Park are located along State Route 2. No TODS signs will be impacted due to the nature of work in this project.	TEM: 207-3
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Could material with long lead times for delivery have an impact on the construction schedule (e.g., strain poles)?	Signal poles may impact construction schedules for projects involving only intersection improvements.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	If traffic control at an intersection is being changed from stop control to signalization, does the stop condition road need to be upgraded to accommodate faster traffic?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other traffic control issues? Specify.		

MAINTENANCE OF TRAFFIC ISSUES:
Indicate if the following maintenance of traffic issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Can traffic be detoured?	The existing Jackson St. interchange will remain open to traffic during construction of the proposed southern ramps and new bridge. Once complete, Jackson St. traffic can be detoured to the new bridge while the existing Jackson St. bridge is replaced. Traffic will be maintained with all other projects.	TEM: 602-6
[X] Yes [X] No [ ] Possible [ ] Not Applicable	Is the local alternate detour route in good condition? Are there any load limits or bridge width restrictions?	Detour route will be new for Jackson St. and there are no load limits or bridge width restrictions.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will the detour route have a detrimental impact on emergency vehicles, school buses or other sensitive traffic?	Detour route will be ~700' north of existing route and less than one mile in total length.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any load limits on the proposed detour route?		
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Does the project fall within the permitted lane closure map?		TEM: 630-4
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is existing bridge width sufficient to maintain traffic? Number of beam lines sufficient?		TEM: 640-2
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will temporary pavement be required?	But not for structure work.	TEM: 640-2, 640-11
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Should temporary pavement be retained after project completion?		TEM: 640-11
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will the speed limit be lowered by more than 10 mph during construction?		TEM: 640-18
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is the existing shoulder in good enough condition to support traffic during construction?		TEM: 640-5
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Does pedestrian traffic need to be maintained?		TEM: 64-25
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will additional width be required on culverts or bridges to maintain traffic?		TEM: 640-2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will a temporary structure / run-around be required?		TEM: 640-11
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will a cross over be utilized?		TEM: 640-11
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Will the road need to be closed for short durations (e.g., 15 minutes for beam erection)?	Temporary closures will be needed for beam erection on the new bridges over SR 44 and the Heisley Rd. bridge widening over SR 2. The SR 2 third lane should be in place as well as an auxiliary lane from Heisley Rd to SR 44.	TEM: 640-8
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Can drive access be maintained at all times?		TEM: 640-10
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Can trucks make turning movements during construction?		
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will portable concrete barrier wall obstruct stopping sight distance?		LDV1-201.2
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will additional signal heads be needed for drives and/or side roads?		TEM: 605-13
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any issues regarding access to the work site?		TEM: 640-9
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any issues regarding construction timeframes (e.g., time of day, time limits)?		TEM: 606-3, 640-14
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Have innovative contracting ideas been considered? Specify.		

☐ Yes ☐ No ☐ Possible ☒ Not Applicable	Are there specific requirements for maintaining railroad traffic?		TEM: 606-19
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Does it appear that the maintenance of traffic will require additional right of way?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other maintenance of traffic issues? Specify.		

RIGHT OF WAY / SURVEY ISSUES:
Indicate if right of way or survey issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Will there be any work beyond the existing right of way limits?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will major real estate relocation acquisition be involved?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Will relocation of residences be involved?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will relocation of businesses be involved?	In areas of major widening or along the new connector.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Does access control need to be revised?	Possibly for 2 businesses adjacent to SR 2 ramps on Heisley Rd.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any obvious encroachments?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Can the number of involved property owners be determined? If so, how many?	Location of a proposed connector has multiple alternatives.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will temporary parcels be needed (e.g., for drive work)?		
☒ Yes ☐ No ☐ Possible ☐ Not Applicable	Will right of way need to be acquired for an agency other than ODOT (e.g., county, city)? Specify.	Right of way for new connector and widening of Diamond Centre Dr. and Shamrock Blvd. will be necessary for the Cities of Mentor and Painesville.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will additional right of way be needed for utility relocations?	Above ground utilities such as electric, cable and telephone will have to be relocated with poles in areas of intersection widenings and add lanes.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Will right of way need to be acquired for storm sewer outfalls?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Do property owners need to be contacted for the locations of underground items such as leach fields, septic systems or field tiles that might be effected by the proposed take?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any mineral rights considerations?	None known at this time.	
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any specific property owner concerns?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Will right of way acquisition from a railroad/railway be involved?		
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Can work agreements be used?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Does the centerline of construction match the centerline of right of way?	In areas of widenings and intersection improvements, the centerlines most likely will not match.	
☐ Yes ☐ No ☒ Possible ☐ Not Applicable	Will right of way be acquired for wetland or stream mitigation?		
☐ Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other right of way or survey issues? Specify.		

UTILITY ISSUES:
Indicate if the following utility issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Do existing utilities need to be relocated?	Above-ground utilities and hydrants will require relocation due to widenings as a minimum.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Can utility conflicts be minimized (e.g., by careful placement of storm sewer and underdrains)?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Would the project benefit from subsurface utility engineering (SUE)?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there existing utilities on an existing structure that need to be relocated?	The Jackson St. Bridge has electric lines encased within the barrier on the south side of the structure.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any specific utility requirements or concerns? Specify.	None known at this time.	
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there facilities that require a large lead time to relocate?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is additional right of way needed to accommodate utility relocations?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there water or sanitary lines that will be relocated as part of the ODOT contract?	An existing watermain is located near the Heisley Rd. structure. Widening of the bridge may precipitate a relocation.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any other utility issues? Specify		

PERMIT ISSUES:
Indicate if the following permit issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will an individual Corps of Engineers/Environmental Protection Agency 404/401 permit be required?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Does it appear that the project can be constructed under a nationwide 404/401 permit? If so, which permit and what specific requirements apply?		
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Will a Coast Guard Permit be Required		
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is review by a local public agency or project sponsor required? Specify.	The Cities of Mentor and Painesville will require the projects to be reviewed internally.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Is Airway/Highway clearance analysis required?	New structures require the analysis.	
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Is Federal Emergency Management Agency (FEMA) approval required?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is railroad/railway coordination required?	CSX Transportation rail lines go under existing SR 44 and the proposed Shamrock Blvd.	
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Is State Historic Preservation Office (SHPO) coordination for work involving historic bridges or historic properties required?		
[ ] Yes [ ] No [ ] Possible [X] Not Applicable	Is coordination with ODNR for work involving State Scenic Rivers, State Wildlife Areas or State Recreational Areas required?		
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Is coordination with any other agency required? (See Location and Design Manual, Figures 1402-2 through Figure 1402-7.)	Coordination with US Fish and Wildlife Service is required because of possible threatened and endangered species within the project area.	

MISCELLANEOUS ISSUES:
Indicate if the following issues are present or should be considered during project development. Provide additional comments as needed

	Design Issue	Comments	References*
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will a value engineering study be required due to project cost (total cost greater than $20 million) or project complexity?	None of the individual projects should be greater than $20 million, but the overall cost will be.	
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Will warranties be used?		
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Are there aesthetic concerns? Specify.	Lighting, noise walls, treatments, etc. should match the LAK-2 corridor projects.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Are there any concerns relating to noise walls?	The City of Mentor has expressed interest in utilizing funds for vegetative strips in place of noise walls as part of the LAK-2 corridor projects.	
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Are there areas available within the existing right of way for portable plants or waste and borrow sites?		
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there specific concerns related to pedestrian access?		
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Any concerns related to landscaping?	See noise wall concerns above.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Are there any concerns related to existing or proposed lighting (e.g., light trespass, river navigation, airway clearance)?	SR 2 and SR 44 lighting is maintained by the Lake County Engineer. Street lighting is maintained by the municipalities or the electric companies. The City of Painesville has utilized decorative lighting on adjacent projects.	
[ ] Yes [X] No [ ] Possible [ ] Not Applicable	Are there any other concerns? Specify.		

RED FLAG MAPPING:
Is a map showing locations of red flag areas attached?
[X] Yes [ ] No **(A map showing locations of red flag areas is mandatory for Major Projects.)**

GEOTECHNICAL DELIVERABLES:
Include copies of plan views, geologic cross-sections, existing boring logs, and soil and rock testing data. This information should be augmented with data from ODOT's archived files of previous projects in the area. Additional information on soil survey data, glacial deposits, bedrock topography, bedrock structure, and aquifer mapping, etc. should be compiled as a GIS workspace. Both digital ortho-quarter quadrangles and U.S.G.S. quadrangles should be available for base mapping. Copies of the reference maps and ArcView files should be provided.

SCOPE, SCHEDULE AND BUDGET CONSIDERATIONS:
Based on the responses to the red flag questions, do any of the following need to be modified?

	Design Issue	Comments	References*
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Conceptual (draft) scope?	The Scope of Work has expanded from just the Jackson St./SR 44 interchange improvements to several projects.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Work limits?	The Scope of Work has expanded from just the Jackson St./SR 44 interchange improvements to several projects with a much larger project study area.	LDV3: 1307.7
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Probable environmental document type?	With several projects coming out of the Locally Preferred Alternative, classifications may range from a CE1 to a CE 4.	
[ ] Yes [ ] No [X] Possible [ ] Not Applicable	Major / minor / minimal classification?	The Preferred Local Alternative will have several projects. All 3 of the project classificatons may be utilized.	LDV3: 1400
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Schedule?	The Scope of Work has expanded from just the Jackson St./SR 44 interchange improvements to several projects.	
[X] Yes [ ] No [ ] Possible [ ] Not Applicable	Budget?	The Scope of Work has expanded from just the Jackson St./SR 44 interchange improvements to several projects.	

Abbreviations:
AUM = Manual for Abandoned Underground Mine Inventory and Risk Assessment
BDM = Bridge Design Manual
LDV1 = Location and Design Manual, Volume 1
LDV2 = Location and Design Manual, Volume 2
LDV3 = Location and Design Manual, Volume 3
SSI = Specifications for Subsurface Investigations
TEM = Traffic Engineering Manual
EPM = Environmental Process Manual